

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

COVER SHEET FOR PCT UTILITY PATENT APPLICATION



DECEMBER 10, 1995

IN RE APPLICATION OF: **Karen L. Huff**

FOR: **A THROUGH-THE-WASHER-DRYER POUCH-TYPE DETERGENT BAG AND METHOD OF USE**

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07/18/97

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NEW APPLICATION TRANSMITTAL

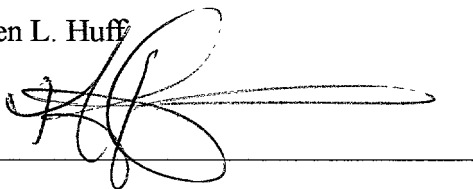
Transmitted herewith for filing is the patent application of: **Karen L. Huff**

TYPE OF APPLICATION: **Original**

CERTIFICATION

I certify that this new application transmittal and the documents referred to as enclosed therein are deposited with the united states postal service on this date 12-19-95 in an envelope as certified mail addressed to the commissioner of patents and trademark. Arlington, Va. 22202-3513.

Karen L. Huff

A handwritten signature in black ink, appearing to be 'KH', is written over a horizontal line. The signature is stylized and cursive.

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07/18/97

INVENTOR

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THE INVENTOR IS A CITIZEN OF THE UNITED STATES OF AMERICA

TITLE OF THE INVENTION

A THROUGH-THE-WASHER-DRYER POUCH-TYPE DETERGENT BAG AND

METHOD OF USE

BACKGROUND OF THE INVENTION

The invention relates to through-the-washer and dryer laundry products and more specifically one that contains a predetermined amount of detergent particulate.

Presently, when washing a load of clothes, the detergent must be measured and added at the start of the washing cycle. The detergent may be either in a liquid or granular form. The detergent that is added in this manner is often spilled or wasted on top of the washing machine, and cleaning is generally necessary.

A fabric softening and static control composition may be added at a different stage of the washing cycle or it may be added during the drying cycle. Several patents have been granted on methods and structures that allow fabric softening and static control compositions to be deposited into the clothes washing machine. The Jones U.S. patent 4,118,525 discloses a water-insoluble substrate carrying an intimate mixture of fabric softening and anti static compound in a dispersion inhibitor. This allows the laundry product that is added to the automatic washer to be subsequently transferred into the dryer with the wet clothes where it provides the fabric softening and static control benefits.

The Bedenk et al U.S. patent 4,638,907 discloses a multi-compartmentalized laminated laundry product that contains different powdered laundry products. The Ping et al U.S. patent 4,733,774 also discloses a through-the-wash and dryer laundry

product that contains fabric softener material. The Clauss et al U.S. patent 4,828,746 pertains to coated particles of fabric softener which are included with detergent in the washing of fabrics. The particles survive the wash cycle and release softeners to the fabrics in a heated laundry dryer. The Wierenga et al U.S. patent 5,002,681 is directed to a pouch, detergent-compatible, through-the-wash, dryer-released, jumbo particulate fabric softening composition.

It is an object of the invention to provide a novel through-the-washer-dryer pouch-type detergent bag that is economical to manufacture and market.

It is another object of the invention to provide a much more effective pouch-type detergent bag that captures a predetermined amount of air in its inner chamber and allows detergent also contained in the chamber to slosh around therein as it dissolves in the water that has penetrated the detergent bag. This insures fast and complete dissolving of the detergent.

It is also an object of the invention to provide a much more effective pouch-type detergent bag having a unique shape.

It is an additional object of the invention to provide a novel pouch-type detergent bag that puffs up when it is dropped in water, then completely flattens out during agitation within the washing machine and later curls up into a wad of material that is transferred with the clothes into the dryer where the water softening/anti-static ingredients are activated and transferred to the clothes during the drying cycle.

SUMMARY OF THE INVENTION

The through-the-washer-dryer pouch-type detergent bag is preferably made from material that is air and water permeable. A good example of such a material is nonwoven polyester material. The detergent bag has a front panel and a rear panel and they are sealed together around their perimeter to form an inner chamber having a predetermined total volume V_T . Detergent particulate having a volume in the range of $.40V_T$ -. $.70V_T$ is deposited in the chamber of the detergent bag. This allows a remaining volume in the range of $.30V_T$ -. $.60V_T$ to be available for air.

When the detergent bag is dropped into the water of a washing machine, it puffs up with air filling the remainder of the chamber of the detergent bag that is not filled with detergent particulate. As the water permeates through the panel walls of the pouch, the water is allowed to slosh around within the chamber, mixing also with the air therein and allowing the detergent to be quickly and fully dissolved in the water. As the clothes washing machine continues to agitate the clothes and detergent bag, the dissolved detergent and air escapes through the porous side walls of the bag and the bag assumes a flattened shape. Further continued agitation causes the bag to curl into a wad of material. At this point the material of the bag still contains its water softener/anti-static ingredients. The clothes and the wadded detergent bag are then transferred into the clothes dryer where the heat in the dryer causes the fabric softener/anti-static ingredients to be released into the clothes.

The novel pouch-type detergent bag allows the detergent and fabric softener ingredients to be quickly and easily added to clothes to be washed in one simple operation. The measuring of detergent into the washing machine and the step of adding a fabric softener/anti-static agent to the washing cycle or the dryer has been eliminated.

DESCRIPTION OF THE DRAWING

Figure 1 is a front perspective view illustrating the novel pouch-type detergent bag;

Figure 2 is a front elevation view of the pouch-type detergent bag;

Figure 3 is a cross sectional view taken along lines 3-3 of Figure 2;

Figure 4 is a front elevation view of an alternative embodiment of the pouch-type detergent bag;

Figure 5 is a cross sectional view taken along lines 5-5 of Figure 4; and

Figure 6 is a front perspective view of the alternative embodiment of the pouch-type detergent bag.

DESCRIPTION OF THE PREFERRED EMBODIMENT

The novel through-the washer-dryer pouch-type detergent bag will now be described by referring to Figures 1-3 of the drawing. The pouch-type detergent bag is generally designated numeral 10. It has a front panel 12 and a rear panel 14. Each of these

panels has a top edge 16, a bottom edge 17, a left edge 18 and a right edge 19. A heat seal seam 22 is formed along three edges of detergent bag 10.

An inner chamber 24 is formed in the interior of detergent bag 10 and it has a total volume V_T . Chamber 24 has a length L_1 , a height H_1 and a width W_1 . L_1 is in the range of 2.5"-6", H_1 is in the range of 2.5"-6" and W_1 is in the range of .5"-2/5". The panels of the detergent bag 10 are made of an air and water permeable material having openings in the range of 0.2mm-2.0mm and have thickness T_1 that is in the range of 2.0mm-8.0mm.

A predetermined weight and volume of granular detergent particulate 26 is located in chamber 24. The size of the detergent particulate is in the range of 5-250 microns and the total weight of the detergent particulate is in the range of 1-8 ounces. H_2 is the height of the portion of chamber 24 that only contains air. H_3 is the height of the portion of chamber 24 that contains the detergent particulate 26. The volume of the detergent particulate is in the range of $.40V_T$ -. $.70V_T$ and the remaining air volume in chamber 24 is in the range of $.30V_T$ - $.60V_T$.

An alternative embodiment detergent bag 30 is illustrated in Figures 4-6. The detergent bag is generally designated numeral 30. It has two containers 29 and 31 for detergent particulate and each of these have an outer panel 32 and an inner panel 34. Each of these respective panels has a top edge 36, a bottom edge

37 a left edge 38 and a right edge 39. A heat seal seam 42 is formed along the respective top edges and left edges of the two respective containers. A web of material 44 connects the bottom edge of the respective containers to each other thereby forming an air/water passage way 46 through the interior between the two containers 29, 31 and web 44.

Each of the containers has an inner chamber 48, part of which is filled with detergent particulate 26. Each of the inner chambers 48 have a length L_2 , a height H_5 and a width W_2 . L_2 is in the range of 2.5"-6", H_5 is in the range of 2.5'-6" and W_2 is in the range of .5"-2.5". Each of the inner chambers 48 has a total volume V_T . The volume of the detergent particulate 26 is in the range of $.40V_T$ -. $70V_T$ and the remaining air volume in inner chambers 48 is in the range of $.30V_T$ -. $60V_T$. H_6 is the height of inner chamber 48 that is filled with air and H_7 is the height of the inner chamber 48 that is filled with detergent particulate.

The manner in which the detergent bags react during use will now be detailed. When the detergent bag is dropped into the water of a wash cycle of a washing machine, the bag puffs up with air that fills up the interior chamber not filled with detergent. As the washer goes through its wash cycle, the detergent bag is agitated and water permeates the interior chamber of the bag and dissolves the detergent. The water that permeates the detergent bag sloshes around within the inner chamber due to the fact its volume is not completely filled with detergent particulate and also the fact it contains a certain amount of trapped air. This

allows complete dissolving of the detergent particulate and it escapes through the water permeable panels of the bag into the wash water. The escape of the air and the detergent into the wash water causes the bag to flatten. Continued agitation and spinning of the bag in the washing machine causes it to curl into a wad of material. When the wash cycle has been completed and the clothes are transferred into the dryer, the detergent bag in its wadded state is also transferred into the dryer and it is now used as an anti-static and softening sheet, that is activated by the heat in the dryer to release the fabric softening and anti-static agent and allows it to permeate the drying clothes.

What is claimed is:

1. A through-the-washer-dryer pouch-type detergent bag comprising:

a front panel having a left edge, a right edge, a top edge, and a bottom edge; said front panel being made of air and water permeable material;

a rear panel having a left edge, a right edge, a top edge and a bottom edge; said rear panel being made of air and water permeable material;

said respective left edges, right edges and top edges of said front and rear panels being sealed together adjacent their respective edges to form a container having an interior chamber therein having a total volume V_T .

said chamber having a length L_1 , a height H_1 and a width W_1 ; L_1 is in the range of 2.5"-6", H_1 is in the range of 2.5"-6", and W_1 is in the range of .5"-2.5"; and

a predetermined weight and volume of granular detergent particulate in said chamber; the size of said detergent particulate being in the range of 5-250 microns and the weight of said detergent particulate being in the range of 1-8 ounces; the volume of said detergent particulate being in the range of $.40 V_T$ - $.70 V_T$ and the remaining air volume of said container having a volume in the range of $.30 V_T$ - $.60 V_T$.

2. A pouch-type detergent bag as recited in claim 1 wherein said front and rear panels are made of nonwoven polyester material.

3. A pouch-type detergent bag as recited in claim 1 wherein said respective edges of said panels are sealed together by a heat seal seam.

4. A pouch-type detergent bag as recited in claim 1 wherein said material of said front and rear panels are impregnated with a fabric softener/anti-static coating.

5. A pouch-type detergent bag as recited in claim 1 wherein said front and rear panels are formed of an integral sheet of material.

6. A through-the-washer-dryer pouch-type detergent bag comprising;

a pair of containers each having an inner panel and an outer panel; each of said panels being made of air and water permeable material and each of said panels having a left edge, a right edge, a top edge and a bottom edge; said respective top edges and left edges of said respective sets of inner and outer panels being sealed together adjacent their respective edges to form two containers each having an interior chamber therein having a total volume V_T ; said chambers each having a length L_2 , a height H_5 , and a width W_2 ; L_2 is in the range of 2.5"-6", H_5 is in the range of 2.5"-6", and W_2 is in the range of .5"-2.5"; a predetermined weight and volume of granular detergent particulate in each of said chambers; the size of said detergent particulate being in the range of 5-250 microns and the total weight of said detergent particulate being in the range of 1-8 ounces; the volume of said particulate being in the range of .40 V_T -.70 V_T , and the remaining

air volume in each of said containers having a volume in the range of $.30 V_T$ -. $.60 V_T$; and

the top edges of said respective containers being sealed together and a web of material having a top surface and a bottom surface connects the respective bottom edges of said respective containers together thus forming an air and water passageway between the inner panels of said respective containers and said top surface of said web of material.

7. A pouch-type detergent bag as recited in claim 6 wherein said inner and outer panels are made of nonwoven polyester material.

8. A pouch-type detergent bag as recited in claim 6 wherein said respective edges of said panels are sealed together by a heat seal seam.

9. A pouch-type detergent bag as recited in claim 6 wherein said material of said inner and outer panels is impregnated with fabric softener/anti static ingredients.

10. A pouch-type detergent bag as recited in claim 6 wherein said respective inner panels, outer panels and web of material are formed of an integral sheet of material.

11. The method of use of a through-the-washer-dryer pouch-type detergent bag and also setting forth the different stages that said pouch detergent bag passes through comprising:

(a) picking up a pouch-type detergent bag having the following structure:

a front panel having a left edge, a right edge, a top

edge and a bottom edge; said front panel being made of air and water permeable material;
a rear panel having a left edge, a right edge, a top edge and a bottom edge; said rear panel being made of air and water permeable material;
said respective left edges, right edges and top edges of said front and rear panels being sealed together adjacent their respective edges to form a container having an interior chamber therein having a total volume V_T ; said chamber having a length L_1 , a height H_1 and a width W_1 ; L_1 is in the range of 2.5"-6", H_1 is in the range of 2.5"-6', and W_1 is in the range of .5"-2.5"; and
a predetermined weight and volume of granular detergent particulate in said chamber; the size of said particulate being in the range of 5-250 microns and the total weight of said detergent particulate being in the range of 1-8 ounces; the volume of said detergent particulate being in the range of $.40V_T$ -. $.70V_T$, and the remaining air volume of said chamber having a volume in the range of $.30V_T$ -. $.60V_T$.

(b) dropping said pouch-type detergent bag into a clothes washing machine set to a wash cycle and as said bag comes into contact with water in said clothes washing machine, said bag puffs up due to air entering the interior chamber of said bag;

(c) agitating said pouch-type detergent bag in the water

during a wash cycle in said clothes washing machine causing water to permeate the interior chamber of said bag and dissolve said detergent and said dissolved detergent and air is then forced out of said chamber as said chamber collapses and said bag becomes flattened;

(d) continued agitation of said pouch-type detergent bag in said washing machine causes said bag to curl up into a wad of material; and

(e) transferring clothes that have finished a wash cycle along with said bag in its wadded state into a clothes dryer that heats up the wadded bag sufficiently to release its fabric softener/anti-static ingredients.

ABSTRACT OF THE DISCLOSURE

A through-the-washer-dryer pouch-type detergent bag and method of use. The detergent bag is made of air and water permeable material and it has an interior chamber having a total volume V . A predetermined weight and volume of granular detergent particulate is deposited in said chamber. The volume of the detergent particulate is in a specific range and the remaining air volume of the chamber is also in a specific range. The pouch type detergent bag puffs up when it is dropped into water and air fills the unoccupied space of the chamber. As water permeates the interior chamber of the bag, the water dissolves the detergent and the detergent and air are forced out of the chamber causing the detergent bag to flatten and collapse. As the detergent bag continues through the wash cycle it curls up and becomes a wad of material.

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DECLARATION FOR UTILITY OR DESIGN PATENT APPLICATION

☒ Declaration Submitted with Initial Filing OR ☐ Declaration Submitted after Initial Filing

Attorney Docket Number

First Named Inventor

KAREN L. HUFF

COMPLETE IF KNOWN

Application Number

Filing Date

Group Art Unit

Examiner Name

As a below named inventor, I hereby declare that:

My residence, post office address, and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

A THROUGH-THE-WASHER-DRYER POUCH-TYPE DETERGENT BAG AND METHOD OF USE

the specification of which

(Title of the invention)

☒ is attached hereto
 OR

☐ was filed on (MM/DD/YYYY) as United States Application Number or PCT International

Application Number and was amended on (MM/DD/YYYY) (if applicable).

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment specifically referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37 Code of Federal Regulations, § 1.56.

I hereby claim foreign priority benefits under Title 35, United States Code § 119 (a)-(d) or § 365(b) of any foreign application(s) for patent or inventor's certificate, or § 365 (a) of any PCT international application which designated at least one country other than the United States of America, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or of any PCT international application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application Number(s)	Country	Foreign Filing Date (MM/DD/YYYY)	Priority Not Claimed	Certified Copy Attached?	
				YES	NO
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☐ Additional foreign application numbers are listed on a supplemental priority sheet attached hereto:

I hereby claim the benefit under Title 35, United States Code § 119(e) of any United States provisional application(s) listed below.

Application Number(s)	Filing Date (MM/DD/YYYY)	<input type="checkbox"/> Additional provisional application numbers are listed on a supplemental priority sheet attached hereto.

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DECLARATION

Page 2

I hereby claim the benefit under Title 35, United States Code §120 of any United States application(s), or §365(c) of any PCT international application designating the United States of America, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT international application in the manner provided by the first paragraph of Title 35, United States Code §112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations §1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application.

U.S. Parent Application Number	PCT Parent Number	Parent Filing Date (MM/DD/YYYY)	Parent Patent Number (if applicable)

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As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith:

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<input type="checkbox"/> OR			
<input type="checkbox"/> List attorney(s) and/or agent(s) name and registration number below:			

Name	Registration Number	Name	Registration Number

☐ Additional attorney(s) and/or agent(s) named on a supplemental sheet attached hereto.

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Fax			

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Name of Sole or First Inventor: ☐ A petition has been filed for this unsigned inventor

Given Name	KAREN	Middle Initial	L.	Family Name	HUFF	Suffix e.g. Jr.	
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Inventor's Signature		Date	12-15-95
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☐ Additional inventors are being named on supplemental sheet(s) attached hereto

Type a plus sign (+) inside this box → ☐

DECLARATION

Page 2

I hereby claim the benefit under Title 35, United States Code §120 of any United States application(s), or §365(c) of any PCT international application designating the United States of America, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT international application in the manner provided by the first paragraph of Title 35, United States Code §112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations §1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application.

U.S. Parent Application Number	PCT Parent Number	Parent Filing Date (MM/DD/YYYY)	Parent Patent Number (if applicable)

☐ Additional U.S. or PCT international application numbers are listed on a supplemental priority sheet attached hereto.

As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith:

☐ Firm Name: Customer Number or label:
☐ OR
☐ List attorney(s) and/or agent(s) name and registration number below:

Name	Registration Number	Name	Registration Number

☐ Additional attorney(s) and/or agent(s) named on a supplemental sheet attached hereto.

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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Name of Sole or First Inventor: ☐ A petition has been filed for this unsigned inventor

Given Name	KAREN	Middle Initial	L	Family Name	HUFF	Suffix	e.g. Jr.
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Inventor's Signature		Date	12-15-95
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Residence: City	LA MESA	State	CA	Country	USA	Citizenship	USA
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Post Office Address	
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City		State		Zip		Country		Applicant Authority	
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☐ Additional inventors are being named on supplemental sheet(s) attached hereto

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VERIFIED STATEMENT CLAIMING SMALL ENTITY STATUS
(37 CFR 1.9(f) & 1.27(b))--INDEPENDENT INVENTOR

Docket Number (Optional)

Applicant or Patentee: KAREN L. HUFF

Application or Patent No.: _____

Filed or Issued: _____

Title: A THROUGH-THE-WASHER-DRYER POUCH-TYPE DETERGENT BAG AND METHOD OF USE

As a below named inventor, I hereby declare that I qualify as an independent inventor as defined in 37 CFR 1.9(c) for purposes of paying reduced fees to the Patent and Trademark Office described in:

☒ the specification filed herewith with title as listed above.

☐ the application identified above.

☐ the patent identified above.

I have not assigned, granted, conveyed or licensed and am under no obligation under contract or law to assign, grant, convey or license, any rights in the invention to any person who would not qualify as an independent inventor under 37 CFR 1.9(c) if that person had made the invention, or to any concern which would not qualify as a small business concern under 37 CFR 1.9(d) or a nonprofit organization under 37 CFR 1.9(e).

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☐ Each such person, concern or organization is listed below.

Separate verified statements are required from each named person, concern or organization having rights to the invention averring to their status as small entities. (37 CFR 1.27)

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b))

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

KAREN L. HUFF
NAME OF INVENTOR
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Signature of inventor
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NAME OF INVENTOR

Signature of inventor

Date

NAME OF INVENTOR

Signature of inventor

Date